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FACT SHEET

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FATS IN THE DIET

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Fat is a nutrient needed in moderate amounts by everyone. A good diet should contain some fat every day.

Obesity and overweight are prevalent in America today. These health problems result when calories consumed exceed energy needs for work and body functions. Our increasingly sedentary way of life has also contributed to the overweight problem.

Almost half the calories of the typical American diet are fat calories. Some fat in our diet, such as that found marbled in meats and in nuts, is hidden. Other fats, such as those in salad dressings, margarine and butter, are more obvious.

Fat is found in all basic four food groups. Some foods within each of these groups contain more fat than others.

Food Group	More Fat	Less Fat
Milk	whole milk	skim or lowfat milk
Meat	heavy beef	lightweight beef
Fruit/Vegetable	avocados	citrus fruit
Bread/Cereal	pie crust	enriched bread

Most nutritionists and physicians advocate moderation in fat intake, only about 40 percent of total calories from fat. This can be achieved by cutting down on added fat and separable fat (that around meat).

Functions of Fat

Fat in the diet performs vital functions in the body:

1. Supplies energy
   Fat supplies 9 calories per gram, more than twice that supplied by protein and carbohydrate.
2. Provides satiety
   Fat gives us the feeling of being full. A diet restricted in fat is often extremely bulky to satisfy appetite and energy needs.
3. Supplies essential fatty acids
   These fatty acids cannot be made in the body and are necessary to maintain a healthy skin.
4. Carries fat-soluble vitamins
   Fats are necessary for vitamins A, D, E and K to be absorbed and utilized in the body.

Classification of Fats

Fatty acids are the building blocks of fat. Three fatty acids combine with one molecule of glycerol to form a fat called triglyceride. This is the form in which fat is stored in the body.

A fat is either classified as saturated or unsaturated, depending upon the kinds of fatty acids present. Chemically, a fatty acid is a long chain of carbon atoms to which hydrogen atoms are attached.

If the carbon chain contains all the hydrogen atoms possible, it is called a *saturated* fatty acid. Saturated fats are found chiefly in animal foods; meat, butter, milk and eggs. Coconut is a vegetable source of saturated fats.

A fatty acid carbon chain which contains one or more double bonds in the place of hydrogen atoms is called an *unsaturated* fatty acid. These unsaturated fats are found mainly in vegetable foods and may be classified as monounsaturated or polyunsaturated.

A *monounsaturated* fatty acid contains only one double bond where hydrogen could be added. Fat in olives, peanuts and pecans is mainly monounsaturated.

Polyunsaturated fatty acids have two or more double bonds in the carbon chain. The fat in safflower, corn, cottonseed and soybean oil is mainly polyunsaturated.

Solid shortenings available in grocery stores may be a mixture of saturated and unsaturated fats. Generally the vegetable oils are made solid by a process known as *hydrogenation*. This process involves the addition of hydrogen atoms to the double bond of an unsaturated fat to make it more saturated, and thus a hard fat.

Cholesterol—Another Fat

Cholesterol, found normally in the blood and tissues of man, performs several important functions in the body:

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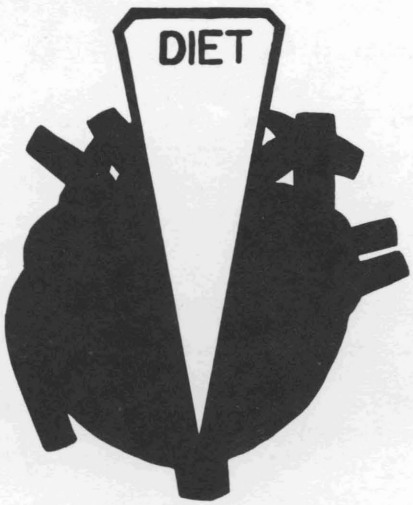
1. Forms part of the membrane surrounding nerve fibers, known as the myelin sheath,
2. Assists in the formation of bile necessary for fat absorption and utilization,
3. Forms part of hormones – estrogen and testosterone,
4. Helps in the formation of vitamin D, an essential nutrient.

Cholesterol is made in the body. The principle sources of cholesterol in our diet include meat, shellfish, egg yolk and dairy products.

Fat and Heart Disease



Faulty diet is one of several factors believed to cause atherosclerosis and increase risk of coronary heart disease. Other factors include heredity, obesity, high blood pressure, high blood cholesterol and other fats, cigarette smoking, lack of exercise, stress and certain metabolic diseases such as diabetes.

Atherosclerosis is a condition in which there is an accumulation of lipid or fat-like materials (including cholesterol) in the blood vessel. Diets high in fat can lead to above-normal amounts of lipids in the blood. It has been shown that elevated blood cholesterol is clearly associated with advanced atherosclerosis. Also, persons with high cholesterol levels tend to develop atherosclerosis more often than those with normal levels. Blood cholesterol can be reduced by a variety of means, including change of diet and administration of drugs.

Based on research, the American Heart Association has recommended that the general public make definite changes in their dietary habits, beginning in early childhood, to reduce the risk of coronary heart disease later in life. The Food and Nutrition Board of the American Medical Association has endorsed these dietary changes for those diagnosed as "high risk" individuals. These changes are reflected in *Eat Well But Eat Wisely,* and involve:

Adjusting calorie levels to maintain optimum weight
Reducing fat to 35 percent of calories
  10 percent from saturated fat
  10 percent from polyunsaturated fat
  remainder from monounsaturated fat
Consuming less than 300 mg. of cholesterol daily

This diet specifically recommends a higher proportion of polyunsaturated fats (PUFA) than found in the typical American diet. This increase in PUFA has been shown to help lower elevated blood cholesterol.

The American Heart Association believes that the risk of heart disease may be increased for many people who show no evidence of having developed heart disease if their regular diet has been high in saturated fat and cholesterol. To reduce this risk, a meal plan that provides all the essential nutrients while being low in saturated fat and cholesterol is recommended. However, Ruth Leverton, Agricultural Research Service, USDA, says that to date, studies have not shown convincingly that the restriction of dietary cholesterol in the general population reduces the frequency of atherosclerosis. Further, the American Academy of Pediatrics has warned against dietary changes for all children. They recommend dietary intervention only when children have been diagnosed as having elevated blood lipids, usually an inherited condition.

Although the dietary prevention of heart disease remains controversial, there is one area in which all physicians and nutritionists agree – reducing calories to bring body weight to a normal level and maintaining that weight. Obesity and overweight complicate almost every health problem.

References

Fats in Food and Diet, USDA, Ag. Info. Bulletin No. 361, January, 1974.

Eat Well But Eat Wisely, American Heart Association.

"Plain Talk about a Confusing Matter," *Nutrition Today,* 9,3:19, 1974.

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